Weekly Report

1. Done

1.1. Get a US visa.

1.2. Based on the results of discussion on last Friday, we change the thesis of our study to "The Impact of map information on privacy protection and analysis". We focus on the privacy of real location and map information appearing in map visualization now.

About map information:

- We need to figure out all map information elements by reading related literatures.
- All information elements will be classified as geography elements (road network, building blocks, water system and etc.), statistics elements (population density) and sematic elements (POIs, events).
- The discussion will also involve the time-varying attribute.

About tasks:

- Tasks are summarized from literatures as well.
- The classification of tasks is not sure. We hope the amount of the abstract tasks is no more than five.

About experiments:

- There are two experiments for abstract tasks and specific tasks respectively.
- Before the second experiment, we need pilot tests to reduce workload.

1.3. Collect related literatures. (2 books, 3 surveys and 73 other papers)

1.4. Paper reading:

- **Movement Data Anonymity through Generalization**:
  In this paper, an adversary's model is defined by clarifying the exact background knowledge, with which they can analyze the generalized trajectories.
- **Semantic Trajectories Modeling and Analysis**:
  The new ideas and techniques related to elaboration and analysis of semantic trajectories are mentioned here. The raw data need data cleaning and map-matching firstly. Then, they add annotations like "stop", "move" and etc. to trajectory episodes. The results can be used for recommendations.

- **Spatial Generalization and Aggregation of Massive Movement Data**: They provide several examples of movement generalization to study trajectory flows.
- **Spatio-temporal Aggregation for Visual Analysis of Movements**: The mosaic diagrams are used to show the variation of the median speeds in spatial compartments by days of the week. Besides, they employ directional bar diagrams to show the movements data aggregated by compass directions.

- **Stacking-Based Visualization of Trajectory Attribute Data**: They visualize trajectories with colored 3D bands and 2D paths. To show the temporally aggregated information, they developed the time lens.